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By Electronic Filing

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: Need for continued unbundling of signaling networks, call-related databases, and AIN databases and services, CC Docket Nos. 01-338, 96-98, 98-147

Dear Ms. Dortch:

Z-Tel Communications, Inc. ("Z-Tel") makes this filing to reemphasize the CLECs' continuing need for unbundled access to ILEC signaling, call-related databases, and the Advanced Intelligent Network ("AIN") platform. In adopting the Act, Congress clearly recognized that need -- the section 271 checklist expressly requires the BOCs to unbundle signaling and call-related databases for the foreseeable future. Moreover, even if it did not, the BOCs (as well as all other ILECs) would still be obliged to do so under section 251(d)(2) because -- as the Commission correctly held in its 1999 *UNE Remand Order*[1] -- CLECs would be "impaired" absent unbundling of these network elements. Finally, at least with respect to signaling for those CLECs (including Z-Tel) that provide service via the UNE platform, this is a point as to which there can be no serious dispute. As the Commission acknowledged in the *UNE Remand Order*, "[a]ll parties, including incumbent LECs, agree that . . . a carrier that purchases unbundled switching from an incumbent LEC must also purchase signaling from that incumbent LEC."[2]

In short, nothing has happened since this Commission's 1999 decision to alter the statute or decrease the CLECs' need for unbundled access to ILEC switching, call-related databases, and AIN platform. Z-Tel therefore respectfully requests that the Commission continue to require ILECs to provide access to these unbundled elements in accordance with the terms of the *UNE Remand Order*.

1. *Signaling network technology*: Traditionally (prior to the 1970s), signaling information necessary for call set-up traveled on the same trunk as the call

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[1] *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996,* CC Docket No. 96-98, Third Report and Order and Fourth Notice of Proposed Rulemaking, 15 FCC 3696 (1999) (*UNE Remand Order).*

[2] *Id.*, ¶ 386.

itself from the originating switching system to the terminating switching system. At that time, the service logic for providing special calling services such as three-way calling was hard-wired into switches. Introducing new services required changes to switch hardware.

Modern communications networks transmit routing messages on a dedicated 56 or 64 kps channel, rather than on the same network that carries the call itself. To perform this signaling function, most LEC signaling networks adhere to a Bellcore standard Signaling System 7 ("SS7") protocol. Switches are equipped with SS7-compatible software, allowing them to communicate with other components of the signaling network. Those components include Signaling Transfer Points ("STPs"), which are high-capacity packet switches that receive and route signaling messages toward their proper destination; and Service Control Points ("SCPs"), which are databases that provide information on how to route calls and set up and manage special features.[3]

The Advanced Intelligence Network platform represents a further expansion of the dedicated signaling network concept. Specifically, while the SS7 network permits the use of distributed databases to provide routing and call management information, traditional SS7 software and SCP technology is service-specific. Thus, providing two different services, such as an 800 service and calling card verification, would require separate service-specific software and different SCPs. In contrast, the AIN platform (while still communicating via the SS7 protocol) employs service-independent software and additional off-line computers to enable provision of a range of services. The services are created in distributed workstations called Service Creation Environments ("SCEs"), then transferred to a Service Management System ("SMS") that regularly downloads software and information to SCPs, where interaction with the voice network takes place via SS7's signaling links and STPs. Examples of services provided via AIN-enabled switching include number portability, wireless roaming, and advanced services such as same-number service and voice recognition dialing.

2. *Section 271 expressly requires the BOCs to unbundle signaling and call-related databases*: As Z-Tel has repeatedly emphasized in this proceeding,[4] the section 271 checklist requires the BOCs to provide "[l]ocal switching unbundled from transport, local loop transmission, or other services." 47 U.S.C. § 271(c)(2)(B)(vi). The Commission has clarified that this obligation "encompasses [access to] all the features, functions and capabilities of the switch."[5] All of the functionalities discussed

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[3] In the *UNE Remand Order*, the Commission noted that those call-related databases include, but are not limited to: the Line Information database (LIDB), the Toll Free Calling database, the Local Number Portability database, the calling name (CNAM) database, the 911 and E911 databases, and Advanced Network Intelligent Network ("AIN") databases. *UNE Remand Order*, ¶ 403.

[4] *See, e.g.,* Letter of December 20, 2002, to Chairman Powell from Robert A. Curtis and Thomas M. Koutsky, Z-Tel Communications, Inc., at 9-10 & n.34 ("*12/20/02 Letter*").

[5] *UNE Remand Order*, ¶ 244; *see also AT&T Corp. v. Iowa Utilities Board*, 525 U.S. 366, 387 (1999) (holding that "vertical switching features, such as caller I.D., are 'functions . . . provided by means of'

above, including those enabled by the AIN platform, are clearly part of the "features, functions, and capabilities" of the switch. Accordingly, consistent with the interpretation of unbundled "switching" set forth in the *UNE Remand Order*, the BOCs are required under item 6 of the section 271 checklist to unbundle signaling, call-related databases, and access to the AIN platform.[6]

Significantly, however, even if the Commission had not construed the unbundled local switching requirement to include access to all features, functions, and capabilities of the switch, the BOCs would still be required under section 271 to unbundle signaling, call-related databases, and access to the AIN platform. In item 10 of the checklist, Congress expressly mandated that the BOCs provide CLECs "[n]ondiscriminatory access to databases and associated signaling necessary for call routing and completion."

The Commission relied on item 10 of the checklist in requiring the BOCs to unbundle these elements in both its 1996 and 1999 *Local Competition Orders*. In 1996, the Commission quoted the text of item 10 set forth above, and concluded from it that "Congress contemplated the unbundling of signaling systems as network elements."[7] In 1999, the Commission cited its earlier discussion of this issue, and emphasized that "incumbent LECs must provide unbundled access to signaling networks as part of the unbundled switch network element as well as on a standalone basis."[8] In short, section 271 expressly requires BOC unbundling of signaling and call-related databases, quite apart from the "impairment" inquiry of section 251(d)(2) (discussed *infra* at 4-7).

Moreover, as Z-Tel has explained in detail elsewhere[9] -- and therefore will only briefly summarize here -- all unbundled network elements required to be provided under section 271 must be provided at cost-based rates consistent with section 252(d)(1) of the Act. As noted above, the items to be unbundled under checklist item 10 are clearly "network elements." And when Congress established unbundling requirements for "network elements" in 1996, it simultaneously (in section 252(d)(1)) set forth a rule to govern pricing of "network elements." "It would strain credulity to

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the switch, and thus fall squarely within the statutory definition" of "[l]ocal switching" that must be unbundled.).

[6] The same is, of course, true for other ILECs required to unbundle switching under section 251(d)(2). Because switching "encompasses [access to] all the features, functions and capabilities of the switch," *UNE Remand Order*, ¶ 244 , the obligation to unbundle switching includes the need to unbundle signaling, call-related databases, and access to the AIN platform. *See also infra* at 4-7 (discussing unbundling requirements under section 251(d)(2)).

[7] *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996,* CC Docket No. 96-98, First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC 154999 (1996), ¶ 479 (*"Local Competition First Report and Order"*).

[8] *UNE Remand Order*, ¶ 380 (citing *Local Competition First Report and Order*, ¶¶ 479-83).

[9] *See Z-Tel 12/20/02 Letter* at 10-13.

think that Congress established unbundling obligations in 1996 . . . and set forth a statutory pricing rule for network elements . . . and yet intended that state commissions not use the statutory pricing rule when arbitrating interconnection agreements."[10] In addition, the checklist itself expressly cross-references the cost-based pricing rule: checklist item 2 plainly states that the BOCs must provide "network elements" in accordance with the requirements of section 252(d)(1). Because signaling and related database information are "network elements," that requirement applies here.[11]

3. *CLECs such as Z-Tel would be impaired under section 251(d)(2) without unbundled access to signaling and call-related databases*: Section 251(d)(2) governs the unbundling obligations of non-BOC ILECs, and also the question whether the BOCs must unbundle other elements in addition to those listed in the checklist. That provision indicates that an element should be unbundled if "the failure to provide access to such network element would impair the ability of the telecommunications carrier seeking access to provide the services it seeks to offer."[12] As Z-Tel has argued previously in this proceeding, section 251(d)(2) thus focuses on the needs of specific competitors[13]; in Z-Tel's view, a competitor is "impaired" when lack of access to an ILEC network element would reduce the CLEC's output by a small, but significant and non-transitory amount.[14]

Significantly, however, the ability of Z-Tel (and, indeed, any CLEC employing the UNE platform) to provide the "services it seeks to offer" would be "impaired" within *any* reasonable meaning of that term without access to signaling and call-related databases. "Current switching technology requires each local switch to connect to a single STP."[15] Because the incumbent LECs' switching networks are already connected to a STP, it is impossible for a CLEC using ILEC switching to obtain signaling from a third-party signaling provider. There is no way to interconnect the third-party provider's STP with the ILEC's switch.

The Commission recognized this stark technological barrier in the *UNE Remand Order*. Indeed, the Commission noted that "[a]ll parties, including incumbent LECs, agree that . . . a carrier that purchases unbundled switching from an incumbent LEC must also purchase signaling from the incumbent LEC."[16] The Commission

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[10] *Id.* at 11.

[11] As also set forth in *Z-Tel's 12/20/02 Letter*, the Commission could not -- contrary to its suggestion in the *UNE Remand Order* -- properly invoke sections 201(b) and 202(a) to set rates for network elements. Those provisions authorize the Commission to establish rates *only* for the "interstate and foreign" portions of communications.

[12] 47 U.S.C. § 251(d)(2).

[13] *See, e.g., Z-Tel Comments* at 22-24.

[14] *See, e.g., Z-Tel Reply Comments* at 21-27.

[15] *UNE Remand Order*, ¶ 386.

[16] *Id.*

therefore required ILECs to provide CLECs using the unbundled local switching with "access to [the ILECs'] signaling network from that switch in the same manner that [the ILEC] provides such access itself."[17] The Commission must retain this requirement in the pending proceeding. Switching technology has not changed since the Commission issued the *UNE Remand Order* in 1999, so competitors still do not have the ability to access signaling from a third-party provider when they obtain unbundled local switching from the ILEC. Without access to signaling, CLECs would not be able to provide their customers with even the most fundamental local calling features and functions, such as local number portability, E911 or Caller ID.

CLECs providing services via the UNE platform also require unbundled access to ILEC call-related databases. One of the primary functions of a signaling network is to access the call-related databases that supply information or instructions used for billing, routing of calls, or providing features. Some examples include: toll-free calling databases; 911 databases; line information database ("LIDB"); calling name ("CNAM") databases; operator services/directory assistance databases; number portability databases; and AIN databases employed in the provision of additional services. Again, due to the technological constraints of current signaling networks, CLECs that obtain unbundled local switching and signaling from the ILEC simply cannot access their own databases, and therefore must rely on the ILEC's call-related databases. This is because the ILEC switch cannot direct signals to CLEC databases for CLEC customers and ILEC databases for ILEC customers. Accordingly, in the absence of unbundled access to these ILEC databases, a CLEC using the UNE platform would not be able to provide any of the services accessed through call-related databases.

In the *UNE Remand Order*, the Commission correctly found that "lack of access to call-related databases on an unbundled basis would materially impair the ability of a requesting carrier to provide the services it seeks to offer in the local telecommunications market."[18] The Commission held that ILECs must provide non-discriminatory access to their call-related databases, "including, but not limited to the CNAM Database, the 911 Database, the LIBD, Toll Free Calling Database, AIN databases, and downstream number portability databases, by means of physical access at the signaling transfer point linked to the unbundled databases."[19] Moreover, the Commission ordered that CLECs leasing unbundled switching be allowed "to use the incumbent LEC's service control point element in the same manner, and via the same signaling links, as the incumbent LEC itself."[20]

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[17] *Id.*

[18] *Id.*, ¶ 410.

[19] *Id.*

[20] *Id.*

With respect to AIN, the *UNE Remand Order* further found that competitors need access to more than just databases in order to deploy services. Citing the *Local Competition First Report and Order*, the Commission explained that "requesting carriers need equivalent access to the incumbent LECs' SMSs to populate their own information in call-related [AIN] databases."[21] As explained above,[22] AIN architecture employs SMSs to download software and information to call-related databases at SCPs -- in the Commission's words, "information bound for many call-related databases is entered into an SMS that then downloads the information to the databases for real-time use on the network."[23] Without the ability "to design, create, test, and deploy AIN-based services at the SMS, through a SCE," the Commission found, in an AIN environment a competitor would be effectively deprived of the access to ILEC databases required by the Act.[24]

One AIN-based functionality that is critically important to Z-Tel is remote call forwarding. As discussed in Z-Tel's November 18 letter in this docket, Z-Tel has spent more than $100 million to develop innovative software-based, dial-tone products that allow residential customers to check their home voicemail box on their computer via a remote Internet connection or use the Internet to change how their calls to their home telephone number are routed.[25] These functionalities are not offered by many of the ILECs. Several other UNE-P providers also have invested significant resources developing their own enhanced calling features, such as innovative voicemail products.[26] Without unbundled access to the full features and functions of the ILEC's switch, however -- including the functionalities enabled by AIN -- it is simply not possible, given the current state of technology, for CLECs to enhance their customers' calls with these innovative services. Accordingly, such CLECs' ability to "provide the services [they] seek to offer" would clearly be "impaired" absent continuing access to signaling, call-related databases, and the additional elements of the AIN platform necessary to utilize those databases effectively.

The Public Utility Commission of Texas ("PUCT") recently re-emphasized that ILECs' unbundling obligations in connection with the provision of local switching include allowing CLECs access to vertical features. In a multi-party arbitration presenting a robust evidentiary record, the PUCT found that SBC had failed to comply with the *UNE Remand Order's* obligation on ILECs to provide requesting CLECs with the ability to design, test, create and deploy AIN-based services in the same manner

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[21] *Id.*, ¶ 412.

[22] *See supra* at 2.

[23] *UNE Remand Order*, ¶ 412.

[24] *Id.*

[25] Letter from Z-Tel Communications et. al. to Joan Smith, Commissioner, Oregon Public Utility Commission and Robert B. Nelson, Commissioner, Michigan Public Service Commission, CC Dockets 01-338, 96-98 and 98-147, filed November 18, 2002.

[26] *Id.*

that the ILEC provides these capabilities to itself.[27] SBC had thereby foreclosed all competitors from developing and implementing creative AIN software solutions to deliver new calling capabilities to retail telecommunications customers. Like the PUCT, this Commission should reiterate that because current technology obliges CLECs to rely on the AIN functionalities provided by the ILECs, ILEC unbundling obligations include non-discriminatory access to those vertical features of the switch. Again, without such access, CLECs like Z-Tel simply will not be able to provide services that today's residential customers expect and, indeed, demand.

4. *Retaining the requirement to unbundle signaling, call-based databases, and the AIN platform will promote the transition to facilities-based competition*: As discussed above, there can be little debate that CLECs providing services via the UNE platform need continued access to unbundled ILEC signaling and call-related databases. Because a switch can only be connected to a single STP, and ILEC switches are already connected to ILEC STPs, it is impossible for a CLEC using ILEC switching (which obviously includes all CLECs leasing the UNE platform) to obtain signaling from a third-party signaling provider. Significantly, however, switch-based CLECs would also be impaired without access to ILECs' signaling networks, call-related databases, and the AIN platform.

The Commission recognized this fact in the *UNE Remand Order*, where it concluded that "requiring a requesting carrier to obtain signaling from alternative sources would materially diminish its ability to provide the services it seeks to offer, due to the quality differences between the signaling networks available from the incumbent LEC and those available from alternative providers of signaling."[28] Because third-party signaling networks are not as ubiquitous as the networks of the ILECs, they do not have the redundancy to protect against network outages, and their STPs are geographically dispersed (i.e., not local).[29] This imposes additional transport costs on a CLEC, which must purchase more and longer transport trunks to interconnect with the third-party provider's STP. Moreover, this introduces a greater threat to a CLEC's network reliability through cable cuts and other outages.

Similarly, switch-based CLECs still require access to call-related databases. CLECs do not have the scale or scope to develop their own call-related databases, as evidenced by the fact that competitors have captured only 11 percent of the local

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[27] *Petition of MCImetro Access Transmission Services, L.L.C. for Arbitration of an Interconnection Agreement with Southwestern Bell Telephone Company under the Telecommunications Act of 1996,* Revised Arbitration Award, Docket No. 24542, page 157 (2002).

[28] *Id.* ¶ 383.

[29] More specifically, ILECs typically locate a pair of STPs in each LATA, so a CLEC can interconnect with a local STP in each market. In contrast, most third-party signaling providers, such as Illuminet, own far fewer STPs, and these are dispersed across the country. As discussed in a recent letter from Allegiance Telecom, Inc., Allegiance would have to interconnect with a third-party's STP in Denver to serve customers in Chicago if the Commission eliminates unbundled access to ILEC signaling. *Allegiance Letter.*

exchange market since passage of the Telecommunications Act of 1996.[30] Also, regardless of whether a CLEC builds it own database or obtains this information from a third-party, much of the underlying data must come from the ILEC. Thus, requiring CLECs to purchase call-related databases from a third-party creates impairment by increasing a CLEC's costs, because the third-party vendor must pay the ILEC to obtain the data needed to populate its own database. In essence, by introducing a "middleman," the CLEC pays twice: first, the charge assessed by the ILEC to the third-party vendor, and second, the charge from the vendor that is assessed against the CLEC for each database query. Additionally, the introduction of a third party creates an opportunity to introduce errors into the underlying data, potentially diminishing the CLEC's performance.

To the extent that signaling and call-related databases are removed from the national list of UNEs, CLECs will be disincented from deploying their own switches as a result of the increased cost and diminished performance they will face if forced to rely on third-party providers. The Commission recognized this fact in the *UNE Remand Order*, when it found that "unbundling the incumbent LEC's signaling networks will give competitive LECs incentive to deploy their own switches, because they can be connected to the ubiquitous incumbent LECs' signaling networks."[31] Switching technology has not changed, and third-party signaling networks have not expanded in scope, since the Commission issued the *UNE Remand Order* in 1999, so this conclusion is still correct three years later.

In sum, Z-Tel encourages the Commission to retain the *UNE Remand Order* requirement that ILEC's provide access to SS7-based services as unbundled network elements at cost-based rates, including signaling, call-related databases, and access to the AIN platform. This will ensure that CLECs, regardless of their entry strategy, will be able to provide a robust suite of calling features and functions to retail customers.

Sincerely,

/s/

Robert A. Curtis
President, Z-Tel Network Services

Thomas M. Koutsky
Vice President, Law and Public Policy

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[30] Federal Communications Commission, *Local Telephone Competition: Status as of June 30, 2002* (December 9, 2002).

[31] *UNE Remand Order*, ¶ 399.